Design Document

FlashAP: American History in Pictures
Promoting Visual Literacy for the History AP Exam

Hadass Blank, Siân Evans and Liza Oldham
LIS 693 – Digital Libraries
Professor Cocciolo
Introduction

For our Final Project, we propose to design a mobile study aid application for high school students preparing for the American History AP exam that concurrently promotes visual literacy through collaboration with the Smithsonian Museum’s digital image collection. Entitled FlashAP, the principle behind this project is twofold: first, that visual images enable users to make stronger mental connections between historical events and their current relevance, and second, that mobile technology provides an important platform capable of engaging younger audiences who are increasingly mobile themselves and expectant of applications that can keep up with their lifestyle.

This project aims to not only provide a simple study aid but to also promote the Smithsonian’s collections through outreach within the educational community. This project should be viewed as a collaboration of researchers and educators on a national scale. By providing high school students and their teachers with immediate mobile access to the Smithsonian's digital collection, this project seeks to ignite the power of art as a learning tool and promote the use of public educational institutions such as museums and libraries. Ultimately, this project endeavors to use emerging instructional technologies to exemplify the Smithsonian's Mission and Vision Statement: “Shaping the future by preserving our heritage, discovering new knowledge, and sharing our resources with the world.”

Purpose

The Smithsonian has an active educational mandate. Michael Edson, the Smithsonian’s director of Web and new media development is currently involved in an overhaul of the institution’s image as the “nation’s attic” by developing projects in crowdsourcing, user generated content, and mobile technology (Olson, 2011). This paradigm shift necessitates understanding the Smithsonian’s mission as one that transcends that of a brick and mortar museum and instead functions as a network of researchers and educators.
The Smithsonian has a number of digital collections designed for educational use on their website that can be encompassed in this project. For example, there are sites that connect the study of history with great American portraiture through the National Portrait Gallery as well as online projects that connect artifacts with the trajectory of American history (in the History Explorer project). There are also important collections at affiliated institutions, such as the National Museum of the American Indian, that foster the study of American History through less canonical lenses. The strength of the Smithsonian’s wide array of collections in both fine art and anthropological objects makes it the perfect institution to spearhead this project.

As inspiration for using visual images to interact with American history, one could turn to Picturing United States History: An Interactive Resource for Teaching with Visual Evidence. This website is administered by the Center for Media and Learning, and the City University of New York Graduate Center, with support from the National Endowment for the Humanities. This project seeks to explore the pedagogical power of images specifically for the study of United States history and could be useful as a starting point for our project. The site includes a number of options for exploring American history: “Lessons in Looking” (curated image groups put together by scholars around topics in American history), essays by scholarly contributors, and “My Favorite Image” (essays on archival images collected by scholars nationwide). It is not, however, a study guide, but more of an exploratory historical project. It is designed for scholars and undergraduate students, not high school students. Furthermore, It does not have a mobile component.

If museums wish to remain relevant in an increasingly mobile environment, they must be proactive and create opportunities for users to find and access their collections within that setting. Mobile technology is a burgeoning trend in the library world as well as in educational settings. Currently, the Smithsonian has only two mobile applications available for download: MEanderthal, a photo-distortion application that enables users to transform their face into that of an early human, and Infinity of Nations, a guide to an exhibition of the same name that includes descriptions, object photographs and metadata, and audio content. Both applications are free and interactive, though MEanderthal is clearly meant
more for entertainment than education. Museums in general have not really exploited the potential of mobile applications beyond those designed to be operated while the user is physically inside the museum (“Plan Your Visit!”). The Louvre, LACMA and the MOMA, for example, all have apps that take the user through some of the highlights of their collections, but the educational purpose and value does not appear to go beyond what one could find and experience on each museum’s website.

AP exams are taken by high school students across the United States from a variety of socio-economic backgrounds in order to earn college credit, stand out in the college admissions process, and thoroughly explore subjects that are either not offered or are not covered as rigorously under regular class syllabi. Currently, popular AP test study resources such as the Princeton Review do not offer mobile apps as study tools. The Smithsonian also does not offer study guides specific to the AP test. Most tools are still in physical book form and are also text-heavy. These types of resources may deter certain students from studying. Our application for the AP American History exam aims to change this by making studying for the test mobile, interactive, and visually-based.

**Literature Review**

The literature on visual literacy and teaching with digital images tends to fall into two main camps: (1) the use of images for generating imaginative responses from students and developing visual literacy, and (2) the use of art and images for teaching from a digital humanities perspective.

The concept of expanding our understanding of “literacy” is one that has gained increased currency in contemporary pedagogical debate. Postmodern education theorists argue for an understanding of art education as predominantly contextual and interdisciplinary. This notion of integrating art education into a broader curriculum and understanding art in its social and historical context is one that has also gained popularity among theorists who approach art education from a cognitive science perspective (Marshall, 2005). Increasingly, understanding teaching in a postmodern sense as “connection-building” and as fostering
creative thought lends itself to using images as a form of developing cultural intelligence and awareness (Marshall, 2005).

As the definition of what it means to be literate has evolved from competence in reading and writing to a contextual understanding of literacy as incorporating culture, visual literacy has come to play an important role in the classroom (Piro, 2002). As Joseph Piro has argued, for example, using Reader Response Theory to analyze images and highlight cultural phenomena can be an imaginative way of interacting with and engaging K-12 students (Piro, 2002). Using Rembrandt’s etchings (Piro, 2002) or Gilbert Stuart portrait of George Washington, for example, can offer an interdisciplinary teachable moment, a chance to develop an authentic sense of history (Piro, 2005). Visual images help not only contextualize and concretize historical moments, but also make for a more dynamic, engaging classroom.

There is also a growing body of literature on the increased importance of visual literacy in the digital age. Today’s “screenagers,” as they are so often termed, are saturated by images on their computers, televisions, and mobile devices (Sandell, 2011). If Marshall McLuhan’s old adage “the medium is the message” is to be believed, then teachers and librarians need to meet the students in this visual world in which they are immersed. Educators are responsible for not only helping students navigate this increasingly visual environment but also harnessing this new visual bias to promote learning.

While some librarians and educators have argued that children are natural visual learners and that an image-based education is one that should begin early in a student’s career (Cooper, 2008), teaching with images is also increasingly becoming a part of college and university education. A study of 404 faculty members across disciplines conducted in 2006 shows that professors are using digital images in 83% of the courses they teach (Green, 2006). Furthermore, the “digital humanities” is an endeavor worth millions of dollars to funders like Google, the National Endowment for the Arts, and Europe’s Digital Research Infrastructure for the Arts and Humanities (DARIAH) (Cohen, 2010). In the current arts-hostile and assessment-based environment, image-based digital humanities projects can
open up avenues for revitalizing education policy and making a case for an arts education (Choi and Piro, 2009).

Preparing students for the increasingly interdisciplinary and visual environment they are likely to find at university could be an important function of FlashAP. The project has the ability to harness a vast amount of visual information made available by the Smithsonian in order to develop students’ visual literacy, foster collaborative and contextual historical awareness, and create powerful visual cues as study guides for the American History AP exam.

**Technology and Functionality**

This project seeks to re-imagine the way students use digital images to learn. Essentially, FlashAP re-envisions the traditional study tool, the flashcard, by making it visual and digital. Both of these functionalities will be based on the Smithsonian’s existing image metadata as well as OCRs of the College Board/AP testing facilities. Students will browse and study through curated image groups based on the 28 historical periods that appear on the AP exam as well as by the 12 themes.

It may be important to note that our small scale build-out (available at [http://tiny.cc/flashapexam](http://tiny.cc/flashapexam)) is not envisioned as a stand-alone website accompaniment to our mobile application. Rather, it reflects the architecture of the app itself. It is designed to make evident the functionality and usability of the site, namely how our high school AP students would be able to move through the mobile application itself. It also serves as a back-end of sorts, where librarians and programmers at the Smithsonian could aggregate and edit content.

FlashAP has a dual top-down hierarchical structure and navigation that enables students to study a number of different ways (Figures 1 and 2). Students can either explore FlashAP by “Era/Topic” (Figure 3) or by “Theme” (Figure 4). There is also the option at any time to “Start the Test,” which will lead the user to the flashcard capability; this button located on
the pop-up navigation menu at the bottom of the app (Figure 5). This navigation menu also allows the user to go back to the previous screen and forward again.

Both Era/Topic and Theme offer a different approach to studying for the exam: one linear and historical, the other thematic and associative. Within each of these environments, the student can browse

- Artworks: a group of curated image groups (Figure 6)
- Key Players: important or influential persons associated with the period or theme at hand (Figure 7)
- Timeline: a scroll-able series of events (Figures 8)
- Flashcards: a flashcard test of the important historical phenomena from the period or theme at hand. This flashcard view presents an image from the Smithsonian’s collections along with a question that could be conjured by the image (Figure 9). When the student taps their screen, the image flips to reveal an in-depth answer to the question that describes the image/object in its historical context (Figure 10).

If the user chooses “Start the Test” from the bottom navigation menu, all of the flashcards from all the sections (every Era/Topic and Theme) will be randomly presented as opposed to if the user chooses “Flashcards” in a specific Theme or Era/Topic section. This will enable students to test their knowledge of US History from a variety of perspectives.

So, for example, if a student clicks on “Era/Topic” they could then explore “The American Revolution Era, 1753 – 1789.” Once they click on this link, they can read an overview of the era itself and then either explore a “Timeline” of important events, “Artworks” representative of the time period, a list of “Key Figures” or they can start testing themselves with “Flashcards.” Once they click on a flashcard, they will be shown a work of art, for example, “The Battle of Valley Forge.” This card will pose a question such as “Why is this encampment still referenced as one of the most harrowing environments of the Revolutionary War?” and once the student taps the image, it will flip to reveal not only an answer to the question, but also links to Key Players involved, as well as a link to the
original Artwork and to the Timeline.

If a student clicks “Study by Theme” they will have a chance to test themselves in a broader, more associative and less linear manner. If they click on “Demographic Changes,” for example, they will be prompted to think about changes in birth, marriage, and death rate; life expectancy and family patterns; population size and density; immigration: economic, social, and political effects; internal migration; and migration networks. If they click “Flashcards,” they may find a flashcard of a gold nugget with a question about the Gold Rush, for example.

The mobile application is designed to be a quick and easy method of studying. It allows students flexibility in their approach to studying depending on their comfort level with the material. As mentioned above, they can browse, study timelines and key figures, or they can simply start testing themselves, using visual cues to trigger knowledge about historical and cultural phenomena.

**Population and Community**

This application will be designed to use by high school students and their teachers. The textual and visual resources would be designed and edited to be appropriate for an 11th or 12th grade student preparing for the AP US history exam. FlashAP could, of course, have a broader use as a refresher course in American History or as a study aid for university or college US History courses. It is, however, designed specifically around the AP testing guidelines and would be best used for this purpose.

FlashAP would be made available for free through the Smithsonian’s website, the College Board’s website and Apple’s iTunes App Store. In addition to fulfilling the educational mandates of both organizations, a partnership between the Smithsonian and the College Board would be beneficial to both institutions from a marketing perspective. Broadly speaking, what we hope to foster is a visually literate, museum-going generation. By instilling the educational importance of museum collections in high school students, we
hope to promote continued interest in and support of public educational institutions.

As such, FlashAP is valuable on two levels: it harnesses mobile technology and the principles of visual literacy in order to help students study for the American History AP exam and promotes the connection between our shared cultural heritage and public institutions.

**Implementation**

In order to make this design possible, a strong collaborative effort from both the Smithsonian and the College Board would be required. The College Board would need to provide text applicable to the AP exam as well as the Smithsonian's collection. The Smithsonian would need to provide digital images and metadata from a number of its collections and departments.

This project would require, over the course of a year in development, a full-time staff of three: one staffer in charge of technology (i.e. developing the application and website), one staffer in charge of image curation and site design, and one education coordinator in charge of liaising with the College Board and developing questions and study areas. The creation of appropriate metadata as well as the process of creating OCRs of the historical text would also fall under the umbrella of the duties of the image and education coordinators. Given that these staffers would earn an average of $75,000 per year, we estimate the initial cost of this project would be $250,000 in total, including a materials budget.

Usability testing would be useful in the development of the application, particularly in developing the architecture of the application itself. This would, of course, require a user experience designer to work with the programmers responsible for developing the application itself.

The Smithsonian is particularly well positioned for this kind of endeavor due to director Edson’s recent endeavors in remaking the Smithsonian’s image and web presence. As such,
some funding could be allocated from this budget. However, the librarians at the Smithsonian would also need to secure grant funding, most likely from the National Endowment for the Humanities, the National Endowment for the Arts, or the Institute of Museum and Library Services. Such funding, alongside current web and educational technology development budgetary allotments, would enable the development of the mobile technology as well as staff time.

After the initial year of development, the Smithsonian’s education department would be responsible for maintaining the mobile application. They would need to liaise with the College Board to make sure the information is up-to-date and would need to also be aware of collections updates at the various branches of the Smithsonian.

**Assessment**

This project will have two user communities for evaluation and assessment: the students who are using the app and the Smithsonian librarians who manage the back-end digital collection. There are a number of means of assessment for both types of users. For the Smithsonian librarians, assessment initiatives will amount to qualitative user testing since the staff is small in number. It is important that the website be easy to use and updated with new artworks and flashcards; user testing in those particular areas will probably be among the first areas of focus.

For the student users, and by proxy their teachers, measures of assessment and evaluation will include diagnostics of unique downloads and user reviews directly from the iTunes app store. We will also track click-thrus of links on the Smithsonian’s website to promotional information on FlashAP. Feedback would also be gathered from the College Board, as it manages the American History AP exam. Ideally, we would like to gather user evaluations after students take the AP exam. That way we can assess FlashAP’s ultimate usefulness and suitability as a study aid for the American History AP exam.

Small Scale Build-out: [http://tiny.cc/flashapexam](http://tiny.cc/flashapexam)
Resources


Smithsonian Encyclopedia (source for images and metadata). Retrieved from http://www.si.edu/Encyclopedia

Smithsonian's History Explorer. Retrieved from http://historyexplorer.americanhistory.si.edu/


Figures

**Figure 1: Wireframe of FlashAP**

**Figure 2: FlashAP Menu Screen**
Figure 3: FlashAP Study by Era/Topic

Figure 4: FlashAP Study by Theme
Figure 5: FlashAP Start the Test

Figure 6: FlashAP Artworks
Figure 7: FlashAP Key Players

Figure 8: FlashAP Timeline
Why is this encampment still referenced as one of the most harrowing environments of the Revolutionary War?

Figure 9: FlashAP Flash Card Front

Key Players: George Washington

Timeline: Battle of Valley Forge

Artwork: George Washington at Valley Forge

Disease, more than any other factor, contributed to the historical notoriety of the encampment at Valley Forge. Though there were also supply shortages and extreme weather conditions, disease was the true scourge.

Army returns reveal that two-thirds of the nearly 2,000 men who perished died during the warmer months of March, April, and May, when supplies were more abundant. The most common killers were influenza.

Figure 10: FlashAP Flash Card Back